

REMARKS

Claims 22-28 are currently pending in this application, wherein Applicant proposes to amend claim 22 and rewrite claim 25 in independent form. Applicant respectfully requests entry of the above-identified amendment and allowance of the present application in view of the remarks presented herein below.

At the outset, Applicant notes with appreciation the indication that claims 25-28 contain allowable subject matter and would be allowed if rewritten in independent form. Applicant hereby proposes to amend claim 25, from which claims 26-28 depend, to be in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, claims 25-28 should be allowed.

On page 2 of the Action, the Examiner rejects claims 22 and 23 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,414,428 to Gallagher et al. (“Gallagher”). Applicant respectfully traverses this rejection.

In order to support a rejection under 35 U.S.C § 102, the cited reference must teach each and every claimed element. In the present case, claims 22 and 23 are not anticipated by Gallagher because Gallagher fails to disclose each and every claimed element as discussed below.

Independent claim 22 defines a signal processing method. The method includes, *inter alia*, modifying a primary signal using, at least, first and second auxiliary signals, and investigating the modified primary signal, wherein each auxiliary signal comprises successive finite-duration shaped portions having relatively low-amplitude leading and trailing parts, the

portions being interleaved with signal portions of the other auxiliary signal such that the leading parts of the portions of each signal overlap the trailing parts of the portions of the other signal.

Gallagher discloses a radar system which transmits dispersed pulses and receives echoes from targets. Gallagher discloses producing received complex envelope signals, which are converted to digital form and applied to the inputs of multipliers 412. The complex exponential signals are selected in conjunction with the frequency of the Doppler filters 422a-m, so that each multiplier 412, when it multiples the digital complex envelope signal at its input port by the *complex* exponential signal (i.e., 416b, 416c...416m) from its associated complex exponential source 416, converts the complex envelope signal to a zero frequency reference, which may be considered to be base band. (See col. 5, lines 40-76; Fig. 4.) However, nowhere in Gallagher is there any disclosure of the complex exponential signals (416c-416m) having finite-duration shaped portions having relatively low-amplitude leading and trailing parts as claimed.

To the contrary, it is well known that signals of the form disclosed in Gallagher (e.g., $\exp(-j2\pi*f_1*r*T_0)$) are a complex waveform having sine and cosine components. Although the mathematical expressions 416c and 416m illustrated in Fig. 4 do not appear to illustrate that the expression is complex (i.e., there is no j in the expression), it is clear from the specification that they are complex expressions. See column 5, lines 40-75 of Gallagher. Furthermore, even if these expressions are illustrated in Fig. 4, the signal would have an exponential shape and therefore monotonically decay from an initial level. Accordingly, there is no low-amplitude leading part as claimed.

In addition, nowhere in Gallagher is there any disclosure of portions complex exponential

signals being interleaved with signal portions of the other auxiliary signal such that the leading parts of the portions of each signal overlap the trailing parts of the portions of the other signal as claimed. Accordingly, independent claim 22 is patentable over Gallagher because Gallagher fails to disclose each and every claimed element.

Claim 23 depends from independent claim 22. Therefore, claim 23 is patentable over Gallagher for at least those reasons presented above with respect to claim 22. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 22 and 23.

On page 3 of the Action, the Examiner rejects claim 24 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gallagher in view of Kesler et al. “Mismatched Filtering of Sonar Signals” (“Kesler”). Applicant respectfully traverses this rejection.

Claim 24 depends from independent claim 22. Therefore, claim 24 is patentable over Gallagher for at least those reasons presented above with respect to claim 22.

Kesler discloses an investigation of mismatched filtering as applied to pulsed continuous-wave sonar signals. However, Kesler fails to overcome the deficiencies of Gallagher. Since, Gallagher and Kesler both fail to disclose or suggest a signal processing method that includes auxiliary signals comprising successive finite-duration shaped portions having relatively low-amplitude leading and trailing parts, the portions being interleaved with signal portions of the other auxiliary signal as claimed, the combination of these two references cannot possibly disclose or suggest said element. Therefore, even if one skilled in the art were motivated to combine Gallagher and Kesler, which Applicant does not concede, the combination would still

fail to render claim 24 unpatentable because the combination fails to disclose each and every claimed element. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 24 under 35 U.S.C. §103(a).

The application is in condition for allowance. Notice of same is earnestly solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Penny Caudle (Reg. No. 46,607) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: May 24, 2006

Respectfully submitted,

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